

REMARKS:

In the outstanding Office Action, claims 11, 12, 14, 15 and 17-19 were rejected. Claims 1-10, 13 and 16 remain cancelled. Claims 12, 15, 18 and 19 are amended, and new claims 20-23 have been added. Thus, claims 11, 12, 14, 15 and 17-23 are pending and under consideration. No new matter has been added. The rejections are traversed below.

REJECTION UNDER 35 U.S.C. §112¶2:

At item 4 of the outstanding Office Action, claim 19 is rejected under 35 U.S.C. §112¶2. Claim 19 is herein amended to comply with the requirements of 35 U.S.C. §112¶2.

Therefore, withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. §102(e):

At item 6 of the outstanding Office Action, claims 11, 12, 14, 15 and 17-19 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,108,775 (Shiell et al.).

Shiell et al. is directed to selecting from stored pattern history tables (PHTs) to generate a branch prediction for a particular address in accordance with a type of program in which the branching is contained (see, column 8, lines 31-37). In Shiell et al., each PHT is associated with programs of a particular type, and a prediction code is selected from the PHTs for a particular program based on the type of that particular program (see, column 10, lines 41-55). For example, PHTs are implemented to take advantage of similarity in branching behavior for branching instructions in application programs, an operating system, etc., by generating a branch prediction in accordance with the corresponding PHTs (see, column 11, lines 60 through column 12, line 13). That is, Shiell et al. does not provide a solution for branch prediction misses that may result immediately after a process switch and a corresponding branch prediction needs to be executed.

In contrast, the present invention prevents branch prediction misses that may occur when a process switch occurs and a corresponding branch prediction needs to be executed. As recited in each of the independent claims 12, 15, 18 and 19 as amended, the present invention provides a solution to the problem presented in Shiell et al. by setting a branch prediction “to predetermined branch prediction information regardless of stored past branch prediction results” upon detecting that a process has switched. Shiell et al. does not teach or suggest, setting a branch prediction to “predetermined branch prediction information regardless of stored past branch prediction results”, instead Shiell et al. selects a prediction code from the PHTs for a

program based on the type of the program (see, column 10, lines 41-55).

Therefore, it is submitted that independent claims 12, 15, 18 and 19 are patentable over Shiell et al.

For at least the above-mentioned reasons, claims depending from independent claims 12, 15, 18 and 19 are patentably distinguishable over Shiell et al. The dependent claims are also independently patentable. For example, as recited in each of the dependent claims 11, 14 and 17, the present invention performs "initialization based on prediction information given to the branch instruction" where the branch prediction information is set to "predetermined branch prediction information regardless of past branch prediction results" (independent claims 12, 15 and 18 upon which claims 11, 14 and 17 depend, respectively).

Therefore, withdrawal of the rejection is respectfully requested.

NEW CLAIMS:

New claim 20 is added to highlight that the present invention includes, "setting a branch prediction in relation to one of the branch instructions to a predetermined branch regardless of the stored branch prediction information upon detecting that the process has switched".

New claims 21-23 are added to emphasize that the present invention includes determining "an initialization value according to a comparison of a program counter value with a branch destination address and a determination of whether a branch prediction direction is backward taken (BT) or forward not taken (FN)" to execute the initialization.

It is respectfully asserted that new claims 20-23 are patentably distinguishable over Shiell et al.

CONCLUSION:

In accordance with the foregoing, claims 12, 15, 18 and 19 have been amended. Claims 1-10, 13 and 16 remain cancelled, and new claims 20-23 have been added. Claims 11, 12, 14, 15 and 17-23 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge

the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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